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Defence Science and
Technology Organisation

Guidance on DSTO Analysis Support to ADF Campaign Assessment

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DSTO-TN-1233

ABSTRACT

This document provides a generic guide for DSTO staff (including deployed operations analysts) on the process for DSTO's Operational Planning and Evaluation Team's provision of analysis support to Headquarters Joint Operations Command for ADF campaign assessments. It uses a program evaluation framework to articulate the roles, responsibilities, sequencing and detailed analysis approaches for DSTO's contribution to campaign assessments of operations in Afghanistan, East Timor, and The Solomon Islands.

RELEASE LIMITATION

Approved for public release

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Published by

*Joint and Operations Analysis Division
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Fishermans Bend, Victoria 3207 Australia*

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AR-015-779
October 2013*

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Executive Summary

This report offers a framework for the monitoring and evaluation activities undertaken by the Defence Science and Technology Organisation (DSTO) staff for the Australian Defence Force (ADF) Campaign Assessments (CA). Responsibility for CA is owned by the J5 (Plans) Branch in Headquarters Joint Operations Command (HQJOC). In July 2010, DSTO was requested to provide support to HQJOC for the CA process and this request was met by DSTO Operations Support Centre's (DOSC) Operational Planning and Evaluation (OPE) Team, DSTO's deployed Operations Analyst teams, deployed Scientific Liaison officers and CA fly-away-teams.

The purpose of a CA is to support effective planning and decision making by assessing the accuracy of the intent and achievability of a campaign plan. ADF campaign plans specify a hierarchy of high-level objectives and set out the Effects (or progress milestones) that will lead to achievement of those objectives. Effects define the boundaries for the range of activities that the Commander Joint Operations (CJOPS) plans to undertake and the scope of influence he expects to have in the area of operations.

Given the complexity and tempo of operations, the achievement of Effects is not always clear and usually requires monitoring of multiple indicators of progress. The OPE Team assisted military planners to identify a robust and comprehensive set of indicators for the Effects identified in the campaign plan, grouped as a set of Measures of Effect (MoEs). These are monitored across regular assessment cycles, and validated against broader monitoring of the operating environment. In this way, we moved beyond simply documenting what had happened to date, and evaluation insights became a more sound basis for decision making on what was likely and desirable for the campaign plan going forward.

Importantly, this framework differentiated between the monitoring and evaluation roles. The definitions and components of each provided a checklist for quality assurance of DSTO's support. Most importantly, use of the framework provided a common vocabulary for communicating and refining processes among the OPE team, deployed operations analysts, deployed ADF Joint Task Forces and HQJOC.

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The two primary points of emphasis for the guidance are that the quality and viability of CA is contingent upon the extent of active client engagement throughout the process, and the clarity and consistency with which DSTO's support to that process is delivered. Adherence to the program evaluation framework as described in this guidance will facilitate both of these.

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Glossary

ADF	Australian Defence Force
CA	Campaign Assessment
CAWG	Campaign Assessment Working Group
CJOPS	Commander Joint Operations
DIME	Diplomatic, Information, Military, Economic
DOSC	DSTO Operations Support Centre
DSTO	Defence Science and Technology Organisation
HQ	Headquarters
HQJOC	Headquarters Joint Operations Command
HQJOC J5	Headquarters Joint Operations Command Plans Branch
LARF	Logic Assumptions and Risks Framework
LoO	Line of Operation
MoE	Measure of Effect
MoP	Measure of Performance
OA	Operational Analyst
OGA	Other Government Agency
OPE	Operational Planning and Evaluation
OPSTSR	Operational Science and Technology Request
RFI	Request for Information
SLO	Scientific Liaison Officer
STSR	Science and Technology Support Request

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Author's Note

This document records the guidance and research approach adopted by DSTO in the period 2010-2012 in support of campaign monitoring and assessment. It was largely written in August 2011, informed by workshops with DSTO operational analysts and campaign assessment staff on 4 July¹ and again on 24 August². It was intended to capture the logic behind the evaluation research approach that was evolving and to provide a generic guide for DSTO staff (including deployed operations analysts) working in support of HQJOC, to conduct campaign assessments of Operation Slipper in Afghanistan, Operation Astute in East Timor, and Operation Anode in the Solomon Islands, under Operational Science and Technology Support Request (OPSTSR)³ 132. Due to the variation in the form of DSTO support to each of these operations, and in particular, the termination of embedded operations analysts in East Timor, the guidance was refined in September 2011 to describe the campaign assessment support process for Operation Slipper only.

Since Quarter 3 2011, this document has been repeatedly amended by DSTO staff to become an analysis plan for each quarterly Operation Slipper assessment cycle, reflecting changes in the process over time. However, the version of the guidance in this Technical Note captures the original form of the process for Operation Slipper as at September 2011. It was circulated for comment among DSTO and HQJOC staff at that time and incorporates some of the feedback received. Some minor amendments have also been made to reduce the security classification, and to ensure that it can be read and understood as a stand-alone document.

¹ With thanks to: Jamie Watson, LTCOL Brett Laboo, Justin Beck, David Graham, LTCOL Graham Goodwin, Amelia Eggerking, Sharmaine Ramasamy, Nathan Sayers, Garth De Visser, David Matthews, Rebecca Karlsson, Paul Bennett. (DSTO)

² With thanks to: Simon Crase, Jamahl Bennier, Tim McKay, Nathan Sayers (DSTO Operations Support Centre), Clive Walmsley (HQJOC Operations Analysis Team), LTCOL David Garside (HQJOC Plans, SO1 J5E), LTCOL Scott Barras (Deployed HQ 633 J8), Edward Harrington, Kate Cameron, LTCOL Brendan Casey (Deployed HQ 633 Operations Analysis Team)

³ Operational Science and Technology Requests (OPSTSRs) are the mechanism through which operationally urgent S&T support requests from the ADF are managed and coordinated by the DSTO Operations Support Centre (DOSC). Defence Science and Technology Organisation, DSTO-GI 01/2011 – Rev 1, *Operational Science and Technology Support Request (OPSTSR) Program*, DSTO Group Instruction, Department of Defence, Canberra, 30 June 2013.

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1. Introduction

1.1 Background

Recent Australian Defence Force (ADF) operations in Afghanistan, East Timor and the Solomon Islands have brought into focus the mechanisms for planning and evaluating large Defence activities. Defence planners are challenged by the requirement to translate national strategic guidance into operational-level plans, due to high degrees of uncertainty about the interests of stakeholders, likely impacts of courses of action, and the timeframes for achievement of goals. In this context, the ability to evaluate progress and identify indicators of change is critical to informing decisions on initiating, maintaining or altering sequences of planned activity. In mid 2010, DSTO was requested to provide support to the Headquarters Joint Operations Command (HQJOC) J5 (Plans) Branch to review and improve the process for evaluating operations, named Campaign Assessments. This support has been provided by the Operational Planning and Evaluation (OPE) Team, within the DSTO's Operational Support Centre, in collaboration with the DSTO's deployed Operations Analyst teams, and deployed Scientific Liaison Officers.

The problem to be addressed by the OPE team was that no formal guidance within Defence for campaign-level evaluations⁴. As a consequence, Campaign Assessment for various operations was carried out using ad hoc formats, and without clear techniques or an agreed framework. This lack of methodology resulted in inconsistent information flows to decision makers and unverified analysis leading to unreliable assessments. As will be detailed in Chapter 2, the rigour and repeatability of the analytical processes is particularly important to manage the uncertainty already present in the complex Defence operational environment. For the OPE Team, this necessitated in the rapid development of a scientifically-based evaluation process to meet HQJOC's requirements, which could be immediately applied to on-going operations.

1.2 Scope

This report provides guidance for DSTO analysts on how to implement the Campaign Assessment process that has been developed to meet HQJOC's requirements. It was first drafted for the third quarter (Q3) 2011 Operation Slipper (Afghanistan) Campaign Assessment. Whilst it is largely descriptive of the Operation Slipper Campaign Assessment process, it is also intended as a generic guide for assessments in other areas of operations. It documents the intent, rationale for, roles and sequence of activities via which DSTO provides scientific support for Campaign Assessment. This report does not represent the body of scientific research that underpins that support, as this is presented in

⁴ Acknowledging that campaign assessment is covered or referred to in a number of ADF Doctrine Publications, but these do not provide a process for executing assessments or conducting campaign-level analysis of progress. See Australian Defence Doctrine Publication 5.0, Joint Planning (Provisional) (2006 January); Australian Defence Doctrine Publication 00.4-Operational Evaluation (2007 August); Australian Defence Doctrine Publication 3.0, Campaigns and Operations (2012 July).

a number of separate DSTO reports⁵. The scope of this report is to document the process and some of the implications of its design, to inform practitioners and to serve as a baseline for future research.

Given the high tempo and immediacy of the operational application of this research, formal review and validation is recommended as the subject of future research. This research would draw upon the findings of all Campaign Assessment reports, on measurement of client satisfaction, and would be assessed against theoretical standards for validity.

1.3 Aims

The aim is to provide clarity on how DSTO analysts can support the Campaign Assessment process by defining the boundaries of DSTO support, and providing detail on the DSTO roles and analytical steps that are required. The result should be a transparent and theoretically valid analysis framework for support to evaluation of ADF operations. As mentioned in Section 1.3, due to the immediacy of application of the CA process, the achievement of these aims has not been formally tested, and is suggested as the subject for future research.

2. Context of Campaign Assessment

2.1 Definition of Campaign Plans

As a long-term planning instrument, campaign plans are designed to articulate Defence's intended contribution to a Government initiative, and translate this intent into a cohesive program of military activity that will align with Government strategy from start to finish (Australian_Department_of_Defence 2006). In a Whole of Government context, as shown in Figure 1, a series of National Objectives are derived from the National Strategy, and these are translated into diplomatic, information, military and economic (DIME) objectives. The ADF operational framework then produces a campaign plan which breaks the military strategic objectives into ADF objectives and Effects, which can then be manifested in operational tasking (Australian_Department_of_Defence 2006).

⁵ See A. Hickman and R. Karlsson "Logic Assumptions and Risks Framework Applied to Defence Campaign Planning and Evaluation", DSTO-TR-2840, Defence Science and Technology Organisation, 2013; A. Hickman, G. DeVisser and R. Karlsson "Lead Indicators Techniques Applied to HQJOC Campaign Assessment" DSTO-TN- Draft, Defence Science and Technology Organisation, 2013.

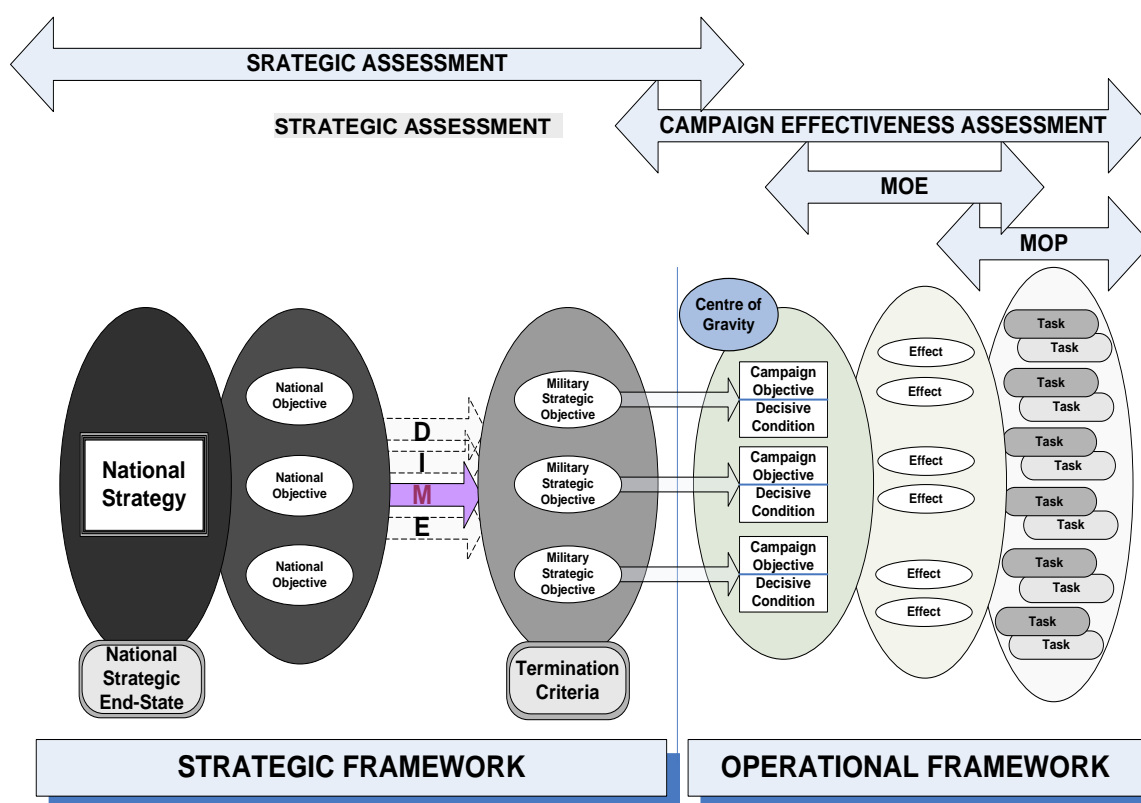


Figure 1: Defence operational planning framework within a whole of Government strategic planning structure.

All campaign plans refer to ADF objectives as *Campaign Objectives*, and each Objective is addressed in the campaign plan with a Line of Operation (LoO), as shown in Figure 2. Current campaign plans comprise between three and six LoOs. Under the LoOs, each Objective is accompanied by a *Decisive Condition* which describes what success is expected to look like, providing the necessary detail for interpretation of high level guidance into planned action. The Decisive Condition is then further broken down into a set of Effects (or progress milestones), which specify the means by which the ADF expects to bring about the Decisive Conditions that will achieve each Objective. Each Effect describes a condition or change in condition that is expected to be achieved by a series of tasks. In this way, Effects define the boundaries for the range of activities that the Commander Joint Operations (CJOPS) plans to undertake and scope of influence he expects to have in the area of operations.

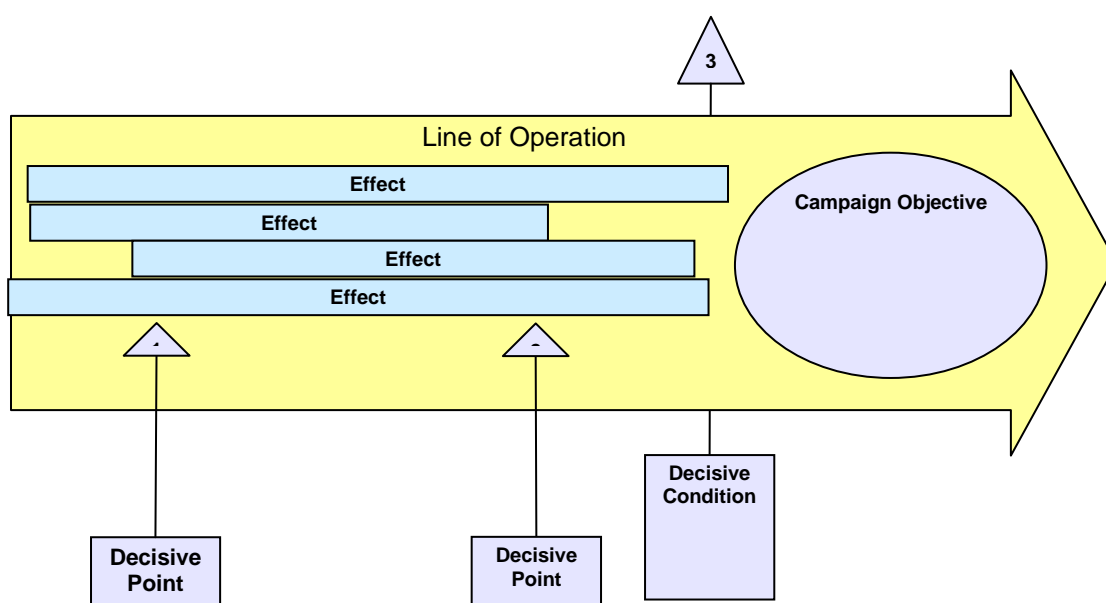


Figure 2: Lines of Operation structure for campaign plan.

The campaign plan can also be thought of as a bottom-up process of aggregation where the cumulative achievement of Effects leads to the emergence of the Decisive Conditions (or pre-conditions) for the ADF End State.

It is apparent that there are multiple layers of planning and categorisation of goals between action on the ground and assessment of whether overall strategic objectives are being achieved. The causal links between the diverse and dynamic range of tasks occurring at the tactical level, and operational-level Objectives are often not clear for a number of reasons, including, but not limited to:

- there may be a lag between task action and visible impact
- objectives are likely to be achieved as a result of the cumulative effect of a combination of tasks
- the impact of a task may be interdependent with a number of non-operational variables which are not easily observable
- some Defence tasks may be aimed at supporting the achievement of the objectives of other Australian Government agencies
- progress towards an Objective may be an emerging condition, which is facilitated by Defence presence, but cannot be advanced by any specific task.

This lack of clarity and complex layering of campaign plans makes planning of timelines and tracking of progress problematic. However, campaign plans must be carefully monitored to identify divergence from expected progress paths, or to provide assurance that current activities and resources are achieving expected results. This type of visibility, referred to in the ADF as *situational awareness* is critical for constant adaptation and

optimisation of effort in the evolving operating environment. In order to achieve this type of visibility, a detailed process is required for monitoring all aspects of the campaign plan's execution, as well as the environment in which it is being executed. For this purpose, a continuous process of monitoring and evaluation of all major operations is carried out by HQJOC, referred to as Campaign Assessment (CA).

2.2 Definition of Campaign Assessment

The purpose of CA is to support effective planning and decision making through assessment of progress of operations against the campaign plan. In the complex and constantly evolving Defence operational environment, monitoring and evaluation enables planners at all levels to:

- maintain visibility of whether the original Commander's intent is being sustained
- identify whether resources are being put to best effect (i.e. whether gains are being built upon, and where less effective activities can be discontinued
- assess the accuracy and appropriateness of the campaign plan and where necessary, adapt it to align with changes in the environment.

As discussed in the previous section, the complexity and tempo of operations means that positive or negative trends are not always clear. One of the mechanisms for overcoming this is to focus on measurement of the achievement of Effects. This necessitates a detailed system of monitoring and evaluation, using a framework of multiple indicators of progress for each Effect to be monitored over time. These indicators are generally referred to as Measures of Effect (MoEs) (U.S. Joint Forces Command 2010), and can be in a variety of forms such as quantitative, qualitative, retrospective, current and predictive; either directly related or broadly contextual. The DSTO evaluation team draw upon monitoring and evaluation science to assist military planners to identify a robust and comprehensive set of MoEs. CA is then carried out by monitoring this set of MoEs across regular assessment cycles, in combination with broader contextual monitoring of the operating environment, as illustrated in Figure 3 below. As Figure 3 shows, CA monitoring may also draw upon tactical-level internal task reporting by deployed forces, where Measures of Performance (MoP) for achievement of each task, may be examined for overall positive or negative trends, or evidence of persistent risks to success⁶.

⁶ As discussed further in Section 3.2.1, MoP data may be used in CA, as are many other forms of reporting, but they are not linked to MoEs which are a component of the CA process structure.

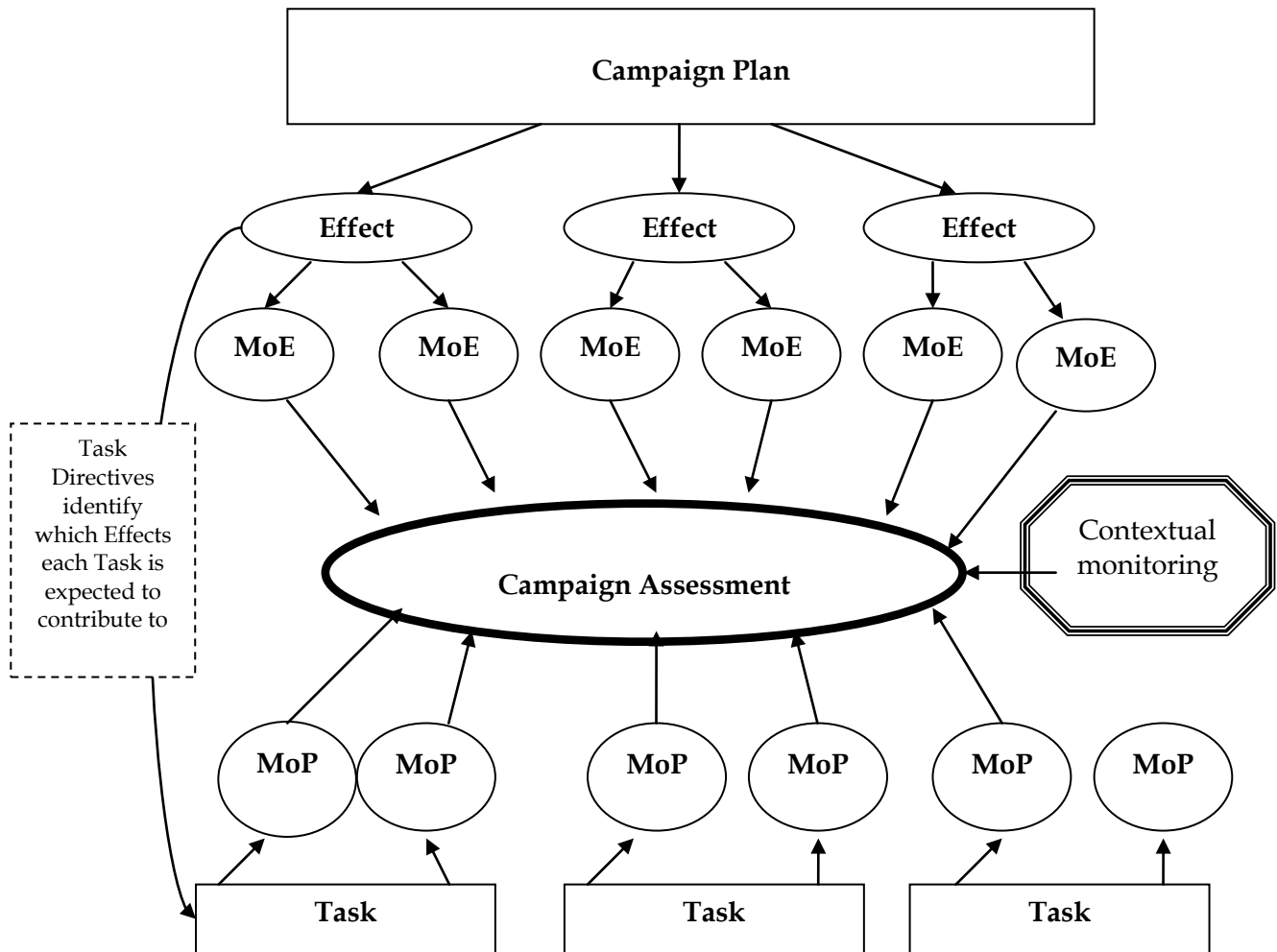


Figure 3: Illustration of Inputs to Campaign Assessment, including Effect to Task relationship derived from Campaign Plans.

The emphasis on contextual monitoring and achievement of Effects, rather than simple summation of the success in a collection of tasks, is a shift from progress reporting in the past. This is in recognition that measurement of the success of modern military operations, as with any other large-scale program or system interventions, must consider the sustainability of achievements, and the flow on (i.e. secondary) effects of activities upon the society in which they are conducted. This is particularly the case in stabilisation operations, where the intervening forces and agencies will be held accountable for the extent to which the positive changes they achieve is enduring, and whether they have negative secondary effects in other sectors of society. Taking account of this broader context in CA requires the rapid synthesis of large amounts of data from diverse sources in a structured format that enables comparison and conclusions to be drawn across the span of the campaign plan. The challenge of expanded assessment was a motivation for HQJOC to enhance the CA process, and to seek DSTO support in doing so.

A more detailed account of how CA is executed, including sequencing, roles and reporting outputs is provided in the remaining chapters of this report. Prior to describing the process developed by the DSTO however, it is necessary to discuss the practical constraints and considerations of the research context that have shaped the design of the CA process.

2.3 Practical constraints and considerations

Support from the DSTO was requested by HQJOC⁷ under OPSTSR 132, to improve the structure and analysis content of the CA process. Specifically, DSTO was requested to:

- a. revise the structure of the CA framework under which information needs are identified, and data is subsequently analysed
- b. identify data gathering and analysis tools and techniques that improve the validity and accuracy of measures of progress
- c. support the revision of Campaign plans, effects, metrics and indicators to adapt to the evolution of operations and the information requirements of decision makers;
- d. provide social and political analysis expertise to support the expanded scope of monitoring and evaluation
- e. establish a team with an average of two staff available for each Campaign assessment cycle with country expertise in each of the three current major areas of operation: namely Afghanistan, East Timor and the Solomon Islands.

Provision of these forms of support is constrained by a number of characteristics of the context of application, and a number of additional constraints and considerations have emerged during the course of research on potential approaches and techniques. Each of these are discussed below.

2.3.1 Operational Time Constraints

Attempting to enhance the CA process in the context of high operational tempo imposes a number of constraints. The aim of the CA improvement is to reach a compromise between what was achievable with the time and information available in the area of operations and the sort of situational awareness required to enable CJOPs to make informed decisions about the current and likely future direction of the campaign. This means refinement and iterative improvements which can be made without disrupting the on-going assessment cycles, regardless of what DSTO analysts might consider to be scientific best practice.

Implementing improvements to CA during on-going operations is constrained by a lack of staff availability for CA data collection and analysis, which precludes the invention of a new process, or even revolutionary changes to the existing one. The techniques

⁷ Classified HQJOC Minute, dated 31 May 2010. The initial request for support was later formalised under Operational Science and Technology Support Request (OPSTSR) 132.

incorporated in the CA process must be selected with the aim of minimising the impact of data collection and analysis upon normal operational activities. As a result, any practical enhancement of the CA process must involve a minimum of staff time investment. This applies to staff resources in the HQJOC J5 (Plans) Branch, and also to the time and staff available in the respective deployed ADF Task Force Headquarters (HQ). Another implication is that there is no staff time available for training or familiarisation on a new CA process, so any changes to monitoring and evaluation activities or roles needs to fit easily into established structures in both HQJOC and the deployed HQs.

Finally, there are minimal resources available to dedicate to analysis of expanded data sources. Therefore, the CA process can not be improved by simply increasing the number of analysts, and it is apparent that a solution has to be found for more efficient processing of an expanded data set, either through analysis techniques or information management tools.

2.3.2 Adaptability

HQJOC's requirement to develop a single, consistent CA approach that can be applied to different campaigns, necessitates an approach that is general enough to be adaptable to various forms of operations, but also specific enough to define and capture information on all aspects of each Campaign. This requires a structured framework that is clearly relevant to ADF mission and priorities, but includes options for adapting the evaluation focus to suit the operational context. In particular, opportunities to create culturally appropriate MoEs are critical, so that assessments can be made on what progress is expected to look like in different populations with diverse baselines of capacity and differing expectations of authority and well being.

This adaptability extends to a requirement for the CA process to maintain ADF operational intent, but also be able to be adjusted to account for broader coalition/UN mission assessment standards and planning where relevant.

2.3.3 Evaluation in a non-permissive environment

A third constraint is the likelihood of gathering data for CA in an environment which is subject to conflict or crisis; referred to as a *non-permissive environment* by the ADF. The likelihood of operating in a non-permissive environment significantly constrains the practicality of gathering evidence on progress directly from the target population. When operating in environments where there may be adversaries, or where there is potential for the situation to deteriorate if some forms of information are made available, the scope for consultation is limited. This is contrary to a large portion of existing techniques for enhancing evaluation, which advocate participative research (Van der Riet 2001) and collaborative evaluation wherever possible. However, while the merits of high degrees of consultation and local participation are acknowledged, this requires longer timeframes and levels of engagement than are usually viable for military operations in post-crisis or conflict environments.

3. Theoretical Framework

The CA process described in this document is based on Funnell and Rogers (2011) Program Theory evaluation structure which will be defined and reconsidered here in the Defence context. As this report is aimed at documenting the process for DSTO support to CA, and not the science behind its development, the historical and theoretical detail on Program Theory is contained elsewhere in another DSTO report (Anderson 2004; Hickman 2013). The theoretical framework will be explained here, only to establish an understanding of the rationale for the structure and sequencing of the CA process.

A Program Theory-based evaluation framework requires that evaluations begin with clear statements of constraints, scope and requirements (Weiss 1972), referred to in Figure 4 as the Context for the Evaluation. Within the framework, this clear context can then be translated into a Monitoring Plan and an Evaluation Plan, which have clear purpose, scope and authority.

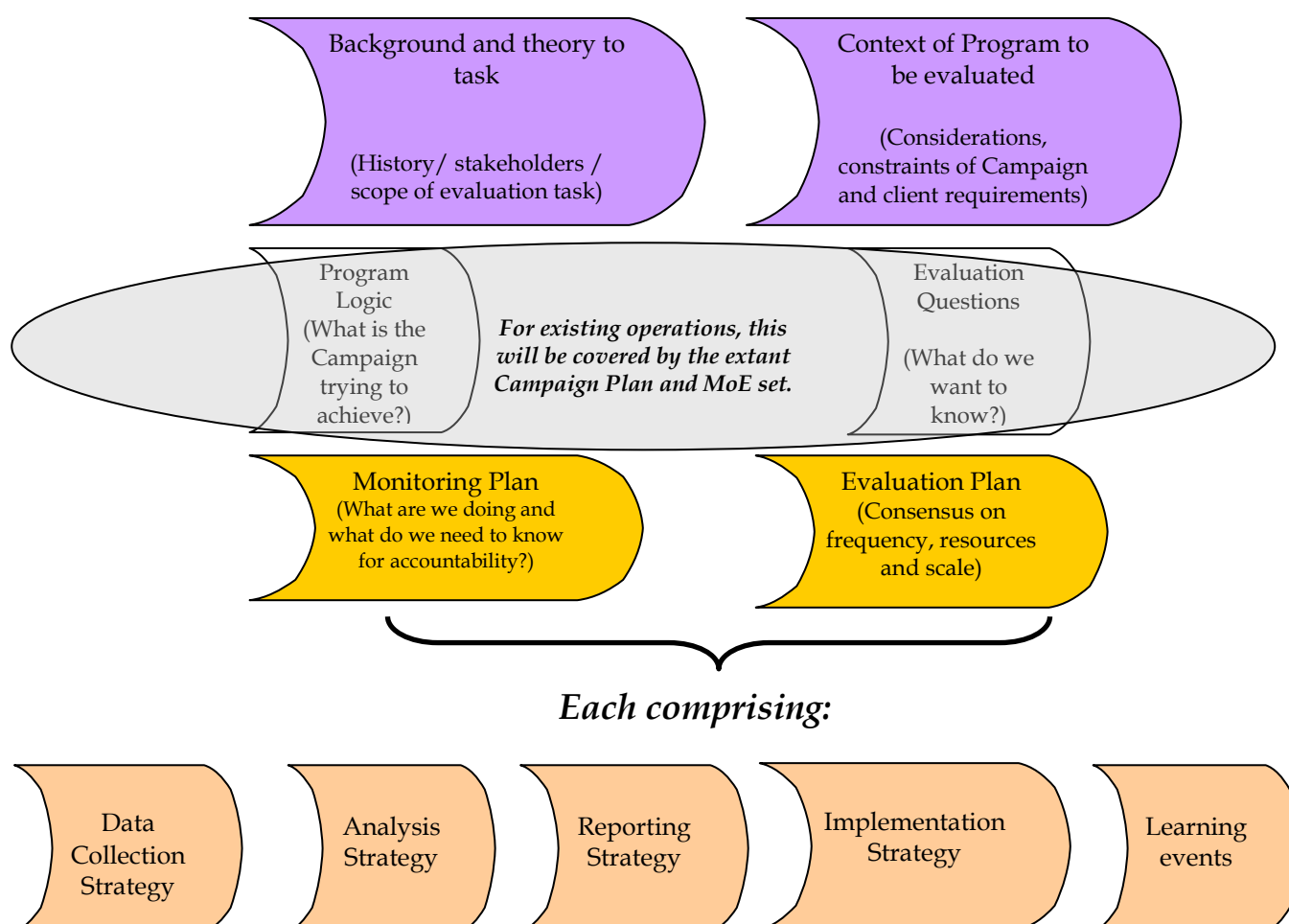


Figure 4: Structure of Program Theory Evaluation Framework for DOSC support to Campaign Assessments

In a conventional Program Theory-based evaluation framework, Program Logic would ordinarily be included in the Analysis Plan and would involve significant engagement with the commissioner of the assessment at the outset (i.e. HQJOC). The timeframes for assessments to date have not allowed for the CA process to include scoping of program logic from first principles, or even the full exploration of the internal logic of existing campaign plans. Instead, the extant campaign plans and the Effects defined within them were used as the basis of Program Logic for the development of the CA evaluation framework.

As Weiss (1997) emphasised in the theory of evaluation science, it is essential that evaluators establish at the outset how the results of the assessment are expected to be used by decision makers, how they understand the assessment to be structured and the role they expect to play in the process. In future, CA cycles would ideally commence with DOSC staff discussions with HQJOC to establish a comprehensive shared understanding of the logic within extant campaign plans and this would combine with the Context for Evaluation (discussed in Section 2.2 above) to define the scope of CJOPS' information requirements. This consultation with key stakeholders to establish consensus on logic, is referred to by Bickman (1987) as a 'Program Logic model', which becomes the baseline for the evaluation. The importance of taking the time to establish a consensus is reiterated by Kilcullen (2009) as follows:

Because we need to track so many things for so many people, a shared diagnosis – a vision of what the conflict is, and what is driving it – is essential. Neglecting this diagnosis risks a situation where analytical staff are drowning in data – lacking a clear conception of what matters and what does not, they collect on everything, creating a mass of disparate data that makes tracking progress harder.

This reinforces the need for the client commissioning an evaluation to accept that they will be required to invest time in the development of the evaluation process, and not just wait to be recipients of the product. This enables evaluators to support the assessment with a clear understanding of the concepts of progress that they are making assessments of, and can also be used as guidance on what will be relevant for those required to provide data.

3.1 Evaluation Questions

Evaluation Questions are arguably the most important component of the Program Theory evaluation framework, because they determine what information the CA will be based upon, and should also form the basis of the Analysis Strategy (see lower layer of framework in Figure 4) of both the Monitoring and Evaluation Plans. It is the analysis prompted by the Evaluation Questions that has greatest impact upon the quality of a CA. Within the CA construct, Evaluation Questions are represented by MoEs, as they are the mechanism through which campaign plan Effects are broken down into more detailed information requirements to determine the scope of data gathering and analysis. In some instances, additional Evaluation Questions may be included, where there are identified information requirements that are not covered under Effects by MoEs, such as broader

environmental context. As explained with reference to Program Logic above, Evaluation Questions would ordinarily be derived from extensive consultation with HQJOC to explore the Effects defined in the campaign plan. Ideally, an MoE set and any additional evaluation questions for each Effect would be derived from this process. However, DSTO has been asked to provide support to CA after Effects and MoEs are already in place for each current operation. Therefore, this step of the framework occurs as a review and refinement of MoEs, rather than devising evaluation questions from genuine exploration of the Program Logic.

Nonetheless, there are brief intervals for refinement of Evaluation Questions through review of existing MoE sets for each operation. When requested on an ad hoc basis, the DSTO team works with HQJOC and sometimes deployed HQ staff, to reconsider the comprehensiveness, cohesiveness and appropriateness of the MoEs. This is intended to include a refinement of the underpinning criteria, by which each MoE will be rated, and accompanying guidance notes, which will advise respondents on how to interpret each MoE, and how they should scope their responses.

Although refinement of the MoE set is an important step in the CA cycle, metrics are not changed from cycle to cycle unless they are outdated or no longer appropriate for the evolving campaign. The minimisation of change to Evaluation Questions (i.e. MoE) is aimed at maintaining as much as possible a consistent framework of measurement of progress over time so that stakeholders can become accustomed to collecting certain forms of data to contribute to CA, and decision makers can expect a reliable and consistent source of information. Most importantly, minimising change in Evaluation Questions facilitates the establishment and maintenance of a baseline of information against which comparisons can be made over time.

3.2 Indicators and observable trends

The terms 'indicators' and 'observable trends' are frequently used in the CA context, and there are a number of theoretical implications related to them that are worth noting before proceeding to describe the process in which they are used. For our purposes they are defined as quantitatively or qualitatively observable variables that provide evidence of changes in a situation or factor we are monitoring (Etheridge 2002).

CAs evaluate progress made in the preceding quarter (i.e. 'lag indicators') as well as likelihood of achieving future milestones, to identify likely risks and provide cues for re-evaluation of aspects of the plan such as timeframes or force structure. In this way, an effective CA process will be instrumental in keeping the campaign plan up to date and relevant, by providing the opportunity to align endorsed planning with the reality on the ground, and vice versa. The challenge here is that assessments of future progress can only be based on what is visible in the present. Therefore, when gathering data, it is worth considering that some indicators may not seem important now, but may be highly valued in combination with other indicators as projections of potential success or failure. Examples of

these sort of indicators are Afghan National Army graduation numbers, local agricultural prosperity, observable growth in new enterprises or enrolments in schools.⁸

Therefore, indicators are signals of change – they are not in themselves the desired end state we are trying to implement. For example, we may monitor the price of daily foodstuffs as a means of measuring the levels of stability in society. Therefore, a steadying in prices is a possible indicator of greater societal stability, but we must remember that normalisation of prices is not our ultimate objective – societal stabilisation is. These indicators are referred to variously in the literature as ‘proxy measures’, ‘lead indicators’ (Hickman 2013a) or as Kilcullen (2009) defines them:

assessment staffs are looking for surrogate indicators that allow them to detect deeper trends in the environment that may not be directly observable. They are also looking for clusters – indicators that tend to occur together and, taken in context, can be interpreted together to generate a picture of overall trends.

This understanding of the types and implications of indicators is informative for efficient and effective data gathering and analysis throughout the CA process, defined in the next chapter.

3.2.1 Measures of Performance (MoPs)

As mentioned in Section 2.2, MoPs are sometimes drawn upon as a data source in CA, but unlike MoEs, they are not a component of the CA process. This is counter to a common misconception that the sum of MoP ratings can be quantified as an indicator of the achievement of higher-level MoEs. This misconception is apparently derived from the use of MoPs in financial and commercial organisational effectiveness frameworks such as the “balanced scorecard”⁹. This confusion of terminology has been observed during briefings of ADF members on the CA process, when there is an expectation that the MoPs used to evaluate tasks at or the performance of staff at the tactical level, are directly linked to the MoEs used in CA. This is not the case, as is frequently clarified in evaluation theory literature and military guidance¹⁰, which asserts that:

MOPs are closely associated with task accomplishment, whereas MOEs measure the attainment of an end-state, achievement or objective. Consider MOPs and MOEs in terms of task and purpose. MOPs relate to accomplishment of the task, whereas MOE’s relate to the accomplishment of the purpose.(U.S. Joint Forces Command 2010)

⁸ In “Power vs Force: The Hidden Determinants of Human Behaviour”, David Hawkins refers to this as making inaccurate ‘presumptions about deterministic linear sequences’, which only focuses on direct and obvious causal variables, and fails to recognise, ‘unobservable’, or less direct influencing factors. (quoted in Meharg 2009)

⁹ For example see “The Balanced Scorecard Institute”, <http://www.balancedscorecard.org/bscresources/performance measurement/tabid/59/default.aspx>.

¹⁰ See also, “NATO Operations Assessment Handbook”, January 2011; and S. Meharg, “Measuring What Matters in peace Operations and Crisis Management” 2009.

Some MoPs have no relation to Effects at all, and relate only to completing routine operational functions that are separate from the achievement of an Effect. For tasks that are related to the achievement of Effects, MoPs only tell us that those tasks have been completed, or may document the obstacles that prevented the task from being completed. This does not indicate whether progress is being made towards an overall Effect, but it may contribute to an explanation of why progress is, or isn't being made. For example, the MoPs for a range of tasks may provide consistent evidence that current force structure or resourcing is inadequate to enable the deployed force to achieve planned Effects.

3.3 Variety of information inputs

When collecting information as indicators for MoEs, monitoring and evaluation theories emphasise the importance of drawing upon numerous diverse sources (Donaldson 2009). An assessment on an MoE has little validity if it is based upon only a single evidence source. Instead, it is preferable to cross-validate indicators with data from alternate sources and to take into consideration other factors such as:

- the situational context
- examples of change with comparable sample groups/seasons/timeframes
- significant events during the reporting period
- aggregation of the Measures of Performance assigned to any related tasks
- data reliability and the motivation/bias of interviewees or generators of the data.

Therefore, when sourcing inputs for MoE indicators it is necessary to look broadly and try to avoid assumptions of oversimplified linear causality (i.e. thinking that a particular action is the only influencing factor for the achievement of the desired result).

3.4 Assumptions

A central tenant of the Program Evaluation Theory applied here is that identification of accurate indicators is contingent upon understanding how planners assume progress is going to be achieved, and what it is assumed to look like. Without surfacing these assumptions, and establishing some sort of consensus on them, indicators of progress will be highly subjective, and their relevance will not be understood by anyone with a different vision of progress. This is widely recognised in evaluation literature and was articulated by the UK Ministry of Defence's Development, Concepts and Doctrine Centre (Couzens 2010):

It is only when ideas have been put into words that flaws in logic become apparent and when misunderstandings between planning team members or the planning staff, commanders and the rest of the staff are revealed.

When conducting CA we must make sure that the implicit assumptions within the campaign plan about achievements of Effects are made explicit. A shared vision of success requires the surfacing of the assumptions that underpin the theory of how change is expected to occur.

This is particularly important when applying a plan over long periods through staff rotations. Also, where there are multiple agencies, departments or organizations involved, each will have their own logic, vocabulary and vision of how progress can best be achieved. These differing perspectives and vocabularies make the articulation of assumptions critical to establishing a shared understanding of how objectives will be achieved.

It can be concluded that incorporation of some form of mechanism for surfacing and monitoring assumptions is necessary in an evaluation framework. To date, inclusion of a specific assumptions component to the CA process has not been achieved within the constraints outlined in Section 2.3. However, more recently, the DSTO team has developed a Logic, Assumptions and Risks Framework (LARF) (Hickman 2013) designed to ensure that this important component of evaluation is integrated into the CA process. The LARF has been trialled on a variety of campaign planning and CA phases, and may be formalised as part of CA in the future.

4. Method for Evaluation Support to Campaign Assessment

The CA context and the theoretical understanding outlined in the preceding chapters underpins the evaluation method that has been developed for DSTO provision of support to CA. DSTO support to CA can be summarised as providing the following:

- analysis of data that underpins HQJOC-led CAs reports to CJOPS and the Chief of the Defence Force
- advice and support to deployed DSTO Operations Analysis Teams to coordinate in-theatre responses against Campaign MoEs
- planning and execution of Fly Away Teams for CA data gathering, as required in various areas of operation
- on-going research to improve the CA process and to contribute to activities pertinent to Campaign planning and assessment in order to improve ADF capability to train, deploy, execute, adapt and complete operations.

The CA method detailed here enables the first 3 forms of support, and is an outcome of the fourth.

4.1 Monitoring and Evaluation Plans

In the past, the entire process for an assessment cycle has been carried out in approximately 16 weeks, as shown in an example timeline at Appendix A, which depicts a CA process carried out using a deployed Operations Analysis (OA) Team. However, repeated iterations of this process have clearly demonstrated that this timeframe is dependent on unsustainable staff levels and significantly compromises the quality of data collection and analysis and does not allow for sufficient validation of findings and optimal report writing. It has been concluded by the CA Science Team Leader that a minimum of 24 weeks for each cycle is required for a consistent quality CA. Allowing any less time than this will need to be negotiated between HQJOC and DSTO to agree on how minimum scientific standards can be maintained and which components of the process will be abbreviated or circumvented.

In order to draw out the different tasks, information domains and responsibilities contained in each CA cycle, a distinction has been drawn between the Monitoring and Evaluation phases of the process. As summarised in Figure 5, for a conventional CA of a large-scale overseas operation, the deployed HQ will be largely responsible for the monitoring of ADF and coalition operational activities, as well as contribution to monitoring data on the broader operational environment. This is complimented by DSTO evaluation team monitoring of indicators of operational progress and of the operating environment, including the activities and interests of OGAs and coalition partners. Evaluation of the monitoring data is then carried out by the DSTO evaluation team in consultation with HQJOC J5 staff. This is followed by a synthesis of trends, conclusions and recommendations that are captured collaboratively by DSTO and HQJOC staff, in a CA report which is circulated for comment to the deployed HQ and OGAs, before being finalised and briefed to CJOPS.

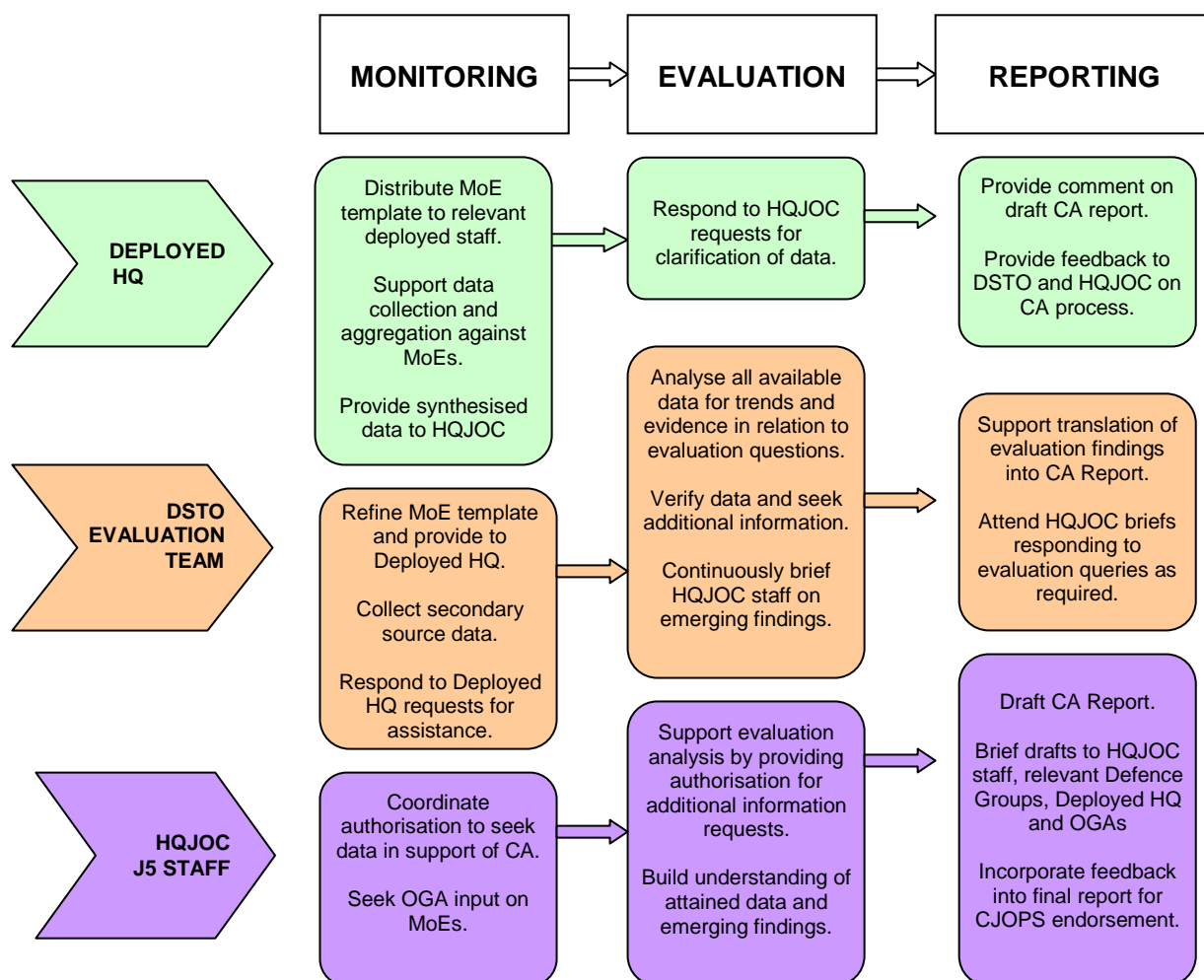


Figure 5: Campaign Assessment Monitoring and Evaluation Roles

As shown in Figure 5, the roles of each of the three contributors shift throughout the process, making it very much a collaborative effort, which no single contributor can achieve alone.

Description of the CA support process in detail will now be given, beginning with steps and guidance on the Monitoring Plan, followed by the Evaluation Plan.

4.2 Monitoring Plan

As part of the CA process, the relevant deployed HQ is required to provide the HQJOC J5 (Plans) Branch with a submission of data on progress made during the reporting cycle, against each of the Effects identified in the campaign plan. This submission is required in

the form of responses to a series of metrics identified for each effect, namely the MoEs discussed under 3.1 above.

As Figure 5 shows, monitoring is largely at the deployed operational level and therefore sits within the responsibility of the deployed HQ through a deployed J8, OA Team or Scientific Liaison Officer (SLO) (assisted by a DSTO fly-away-team). This monitoring then transitions into the evaluation space, when the deployed HQ passes their monitoring data to OPE Team (via HQJOC J5 Branch).

4.2.1 Data collection Strategy

4.2.1.1 *Data sources*

It has been recognised that OA teams do not always have an organic collection capability, so their inputs to the CA process may be drawn from mining of secondary data sources, rather than concentrating on gathering new and novel data. As discussed in Section 3.2.1 and 3.3, data is sought in the form of:

- a. evidence for positive or negative trends in each MoE (drawn from observable indicators of incidents, briefs and reports, interviews, and aggregated data from MoP ratings)
- b. contextual insights into the broader operational environment (drawn from all forms of classified and open source reporting and interviews).

Previous CA cycles have resulted in the production of various forms of data collection plans in each area of operation, which should be available as a starting point checklist of primary sources of data and responsibilities for data collection.

4.2.1.2 *Socialisation of metrics*

Data collection is greatly assisted if respective deployed HQ cells are familiar with the CA process and the MoEs that are likely to relate to them. The MoE set is supplied to OA Teams and SLOs in the form of a template, which includes guidance notes on how to interpret each one, the primary source documents/reports with which each MoE is aligned, the scope of information sought, and any associated points of relevance in previous studies or from other sources. The template can also include space for respondents to report the source of their information, rate its validity, the sample size used, timeframe, comparison with previous reports, to note any contrary indicators, and to give narrative examples. Where possible it is intended that this MoE template is socialised regularly with the members of the deployed HQ who are responsible for any form of reporting.

As part of the socialisation of metrics, nominated responsibility for data and sources will need to be reviewed by the OA Team each cycle, to take account of new sources, changes in reporting roles and lessons from previous cycles. This is a dynamic and ongoing process where the regular briefing of deployed HQ staff, recording of information sources and feedback to the OPE Team on the availability (or lack of) data will:

- enhance understanding of the intent of the process (ie. the impact of assessments and the fact that they are not just compliance reporting)
- pre-empt any obstacles to data collection before they become the cause of 'nil returns'
- provide an opportunity for communication of any queries or corrections to HQ JOC before time and effort is spent on data collection.

4.2.1.3 Data collation

Collation of data relevant to each MoE should be occurring within the OA Team from the day that the previous cycle ends. In the past this has been in the form of storing data under MoE-specific files in a repository which is shared by OPE Team on the DOSC Sharepoint system, which has an identical structure on both the SECRET and RESTRICTED networks. It is intended that this repository can be added to by anyone throughout the cycle, either copying or attaching data directly into the appropriate folders, or summarising for future reference. It is critical that all material is accurately referenced to enable further review.

Several weeks prior to the agreed deployed HQ submission date, deployed HQ data should be collated by the OA Team or SLO, to facilitate the commencement of an initial analysis phase.

4.2.2 Analysis Strategy

The OA Team or SLO (assisted by the CA fly-away-team) are relied upon to synthesise the data they have collated and conduct initial analysis of trends and observations relevant to the MoEs. Wherever possible these trends and assessments should be drawn out of discussion of the data with deployed HQ subject matter experts, reflecting the perspective of key positions in theatre.

There are a number of key analysis questions that should ideally be reflected upon when synthesising data during this phase, which are aimed at drawing out the insights that the deployed HQ may be best placed to elaborate on. For example:

- What tangible evidence is there of progress ratings for any of the MoEs? Are there any aspects of this evidence that would compromise its validity?
- What are the factors currently inhibiting, or likely to inhibit progress?
- Where trends have been indentified, what are the risks to continuing or reversing them?
- Do any of the assessments/evidence provided by deployed HQ staff contradict previous assessments? If so can the source area provide explanation?
- What broad narratives on progress and ultimate campaign success are apparent in the area of operations?

To the extent that time permits, comparative charting of MoE ratings and any quantitative key indicators, against data from previous cycles, is highly valued as part of the deployed HQ submission.

Even at this stage, where there is still confusion over rating scales and metrics associated with each MoE, queries should be directed back to the OPE Team, so that there can be some consensus on the basis for ratings. In some instances, greater clarity on the intent of a MoE or associated criteria may be given through examples or additional indicators.

4.2.3 Reporting Strategy

Following the analysis phase, MoE assessments, evidence, trends, and observations are combined in a draft submission which is then workshopped with all deployed HQ staff to ensure accurate representation (1 week before submission date). The submission can then be forwarded to the HQJOC J5 (Plans) Branch and DSTO OPE Team. This submission does not need to be a polished report format and can take any form that best suits the data being presented. It is important, however that the submission has several characteristics:

- Clearly identifiable ratings and explanations for each MoE (including explanations where no data was available, or where no assessment is offered).
- All assertions – whether contextual observations or MoE ratings – are supported by examples, and explanation of potential causality. If there are no indications of causality, the lack of visibility is also reportable.
- Comprehensive and consistent referencing for data to enable verification, to avoid duplication, and to enable maintenance of corporate knowledge.

The use of previous deployed HQ CA submissions as a template, is recommended, after first checking with HQJOC or the DSTO team that the particular cycle that is being used is an example that we would seek to replicate. If in doubt, submission of early drafts to OPE Team will provide an opportunity for guidance on desirable content and format.

The level of approval required for the submission prior to sending to HQ JOC has changed over time. There have been variations between a requirement for full briefing and approval by deployed HQ prior to submission, to submission of raw data from the deployed HQ with no requirement for approval beyond the OA team. This is an aspect of the process that will need to be re-confirmed each cycle to ensure that Commanders and HQJOC are aligned and that there is ample time allowed for any approval process.

Following the deployed HQ submission, the OA Team or SLO may receive additional requests for information or clarification from HQJOC or the OPE Team. There should also be an opportunity to comment on drafts of the final CA report before it is briefed to CJOPS. These drafts will provide an opportunity to gain consensus on the weighting of information from various sources, understand the impact of the broader context on the interpretation of information provided by the deployed HQ and comment on the validity of analysis feeding in to the final report. Timeframes for this collaborative feedback loop are often compressed by HQJOC, depending on HQJOC's scheduling of the CA Board or

the timing of subsequent briefings to the Defence Strategic Command Group or the Government's National Security Committee.

4.2.4 Implementation Strategy

In preparing for a CA cycle, or when conveying lessons on a previous cycle, consideration should be given to any tangible obstacles to execution of this task. This includes any time constraints or concurrency issues; identification of critical enablers such as staffing, resources, IT systems security, or ADF support.

4.2.4.1 *Staff and skill sets*

The core skill set of deployed analysts for the execution of CA as identified by previous OA Team and fly-away-team members are liaison, interviewing techniques, initiative, confidence, the ability to establish contacts and a willingness to communicate. Any additional skills that individual analysts may possess can be considered a bonus (Hickman 2011). Previous OA Teams have raised command and control issues in relation to appropriate channels for reaching into theatre to gain CA information. For example, it may not be appropriate for HQJOC to reach directly into the Operation Slipper OA team for information without first going through the deployed HQ J8 officer. This issue will vary between rotations, depending on operational tempo and the preferences of various individuals in a chain of command. It is recommended that appropriate processes for information requests be discussed prior to the commencement of CA cycles (e.g. that the J8 be notified of subsequent correspondence).

4.2.5 Learning Events

In the interest of achieving better quality assessments and in making the CA process easier, the OA Team is advised to review, capture and communicate lessons on the process after the completion of each cycle.

The kinds of input from the deployed HQ that the OA Team are able to capture at this stage are:

- Have any gaps been identified? Is the metric too broad or too narrow so that it fails to provide an opportunity to report on the contribution of an area to achieving its Effects?
- What information sources was given primacy in responses, and why? Are there other perspectives that could be considered?
- What boundaries or constraints are in place within the response, and why? Are these transparent for analysts?
- Is there a clear understanding of the delineation between MoPs and MoEs?
- Are the criteria and rating scales understood?
- Are the degrees of validity of source data made clear?

- If there is insufficient information to respond to a given MoE, have you identified this information gap?
- Are there any comparative assessments that can be made relative to other timeframes, seasons, locations, data sources?
- Does the CA process work? How can it be improved?

4.3 Evaluation Plan

The differences between 'monitoring' and 'evaluation' are often difficult for stakeholders to appreciate. Monitoring is only useful and interesting if it is used effectively for evaluation. Simply charting trends or listing achievements does not provide insight into whether activities are combining to achieve a desired Effect, and has limited utility in determining causal factors to inform decisions on future courses of action. Evaluation synthesises monitoring data from a range of sources and verifies it. Where inconsistencies appear between sources, the evaluation process acquires further information, or seeks to better understand the explanations for variation in interpretation of data. In many instances, evaluation of a particular factor will not result in any change in the conclusions reached at the monitoring stage, and will simply verify them. The remainder of the time though, the evaluation stage will verify, elaborate on and contextualise insights drawn out at the monitoring stage. In this way, we can move beyond simply documenting what has happened to date, and evaluation insights become a more sound basis for decision making on what is likely and desirable for the campaign plan going forward.

4.3.1 Data Collection Strategy

Throughout the quarter, OPE Team will be responsible for collecting data relevant to each of the MoEs and to the operational context more broadly. This may be assigned as the primary responsibility of one member of OPE who will interrogate daily Defence reporting and store any relevant data in the files created for each of the twenty effects in the shared repository on Sharepoint – which is the same location that information from the deployed OA or fly-away team should be stored. ASSESSREPS, INTREPS, INTSUMS, deployed HQ SITREPS and periodical coalition reporting are envisaged as primary sources of CA-relevant information. If done properly, they should summarise everything relevant to CA from other forms of reporting. They are also authorised to be released and therefore, are not subjected to the same issues as sharing raw data from other sources.

At the same time, the remaining members of OPE Team working on the CA cycle, will be responsible for maintaining awareness of open source reporting and significant developments relevant to Australian Defence's role. The operational context is everything other than direct ADF operational activity. In relation to CA, contextual awareness makes assessment of progress against the Campaign Plan more realistic. It allows us to look beyond our own immediate perceptions to make more accurate assessments of whether we are genuinely succeeding or failing in the eyes of the local population, coalition partners, adversaries and the Australian Government. Also, by taking account of the full

spectrum of potential causal factors for progress (or not) towards achievement of Effects, we are better positioned to analyse how our activities interact with the local context, and can then make assessments of what activities are likely to be most effective (Meharg 2009). This means not just asking “What works?”, but “What works for whom, when, where and why?” There is no doubt that taking account of contextual information adds to the complexity and analysis burden of CA, but this is far outweighed by increased validity of assessments and benefits for situational awareness.

Approximately 1 month prior to the end of the assessment period, HQJOC J5 (Plans) Branch staff will seek data submissions from HQJOC J2 (Intelligence), Defence International Policy Division, the ADF Special Operations Task Group and other areas of Defence on specific MoE as necessary. It will always be necessary for DSTO staff to confirm that these information requests have been sent and to follow up on inputs.

A fourth and final component of the data collection strategy is eliciting input from other Government agencies (OGAs); at minimum AusAID and the Australian Federal Police. This is achieved by OPE Team members and HQJOC J5 (Plans) Branch staff through meetings to be held usually in Canberra during the data collection phase. Obviously these meetings will need to be arranged well in advance, but they will be driven by information gaps and questions identified by the analysis team during review of other data and initial drafting of the report. Data from these meetings should be captured in formal written Records of Conversation. These meetings are also an opportunity to confirm OGA attendance at any scheduled CA Working Group (CAWG) and CA Boards.

4.3.2 Analysis Strategy

The analysis phase of the assessment cycle will require the nomination of an OPE Team lead. The team leader will take responsibility for re-confirming agreement on forms of support and timelines with the HQJOC J5 (Plans) Branch staff, as well as coordinating delivery of analysis products and allocating specific analysis tasks to supporting team members, ideally matching expertise to various lines of operation.

End of cycle analysis will usually commence several weeks prior to receipt of the deployed HQ submission, starting with OPE Team lead consultation with HQJOC J5 (Plans) Branch staff to confirm the form, scope and scale of assessment required for this quarter, including any areas of special interest to be featured in line with Strategic Command Group or Cabinet requirements. At this stage, timing for feedback of drafts to deployed HQ staff, any CAWGs and the CA Board will be agreed.

4.3.2.1 *Primary Analysis*

In the weeks prior to the end of the CA cycle, OPE Team members will be allocated a Line of Operation to start working through the data stored throughout the cycle on Sharepoint and responses to MoEs received from various areas of Defence as they are received from HQJOC J5 (Plans) Branch staff. Analysis will focus on drawing out the following aspects as part of early draft sections of the report:

- significant events/developments

- trends of change (positive or negative), and continuation of trends identified in previous assessments.
- status of activities forecast in previous cycles (both ADF and other stakeholders)
- constraints
- information gaps
- inconsistencies
- additional requests for information (RFIs) for the deployed HQ, other Defence and intelligence agencies, and questions for OGAs.

The draft sections of the report developed at this stage start to construct a narrative in two potential ways. Firstly it may centre around a significant event or milestone and use examples and reported perspectives to articulate possible causal factors. Secondly, it may articulate an observed trend citing evidence of that trend in the form of examples of activities, reported observations or quantitative analysis of criteria associated with that trend. In both cases positive or negative change and causal links must be explained in terms of the data available (i.e. evidence-based), ideally referencing reporting from more than one source.

4.3.2.2 *Secondary analysis*

At this point, the team has a substantial working draft from which to commence analysis of incoming responses to the MoE set from theatre and elsewhere. Each Effect can now be assessed within each Line of Operation, in terms of progress towards Decisive Conditions. Specifically analysis should progress beyond simple data synthesis, to where expert analysis value is added to the process by drawing out:

- indicators of future likelihoods
- emerging risks and potential mitigation strategies
- assessments against planned progress and implications of these
- planning considerations
- recommendations for investigation or action.

During this stage, analysts will need to be cautious of simplification of causal chains and failure to take into account combined complex 'causal packages'. Further, DSTO analysts must maintain a clear concept of the boundaries of their expertise and leave recommendations on military planning that fall out of analysis for J5 consideration.

When each of the sections of the draft is consolidated by the team leader and J5 staff into a single document, analysis ceases and the DSTO team's staff effort decreases to one to two staff supporting drafting of the final report. This is likely to include some analysis response to issues that emerge during the CAWG, as part of the re-drafting process described under Reporting Strategy below.

4.3.3 Reporting Strategy

As detailed as an initial step in the Analysis Strategy (4.3.2) above, it is crucial that there is clarification with HQJOC J5 (Plans) Branch staff of the required reporting format, prior to analysis and drafting, and this format and scale should be maintained unless changes are jointly agreed. This includes differentiating between a “full report” and a smaller “update” for quarterly CAs. For example, there may be reconsideration of the scale of an assessment if it falls during a key decision point period, or follows significant events in the area of operations.

The factors that should be considered in the scoping of the report with HQJOC J5 (Plans) Branch staff include:

- Timeliness – what is achievable in the time available to provide input to decision-makers (eg. what are the imminent decision windows, key planning events and Government meetings?). In the time allowed, what will be good enough?
- Is the target audience for the report (ie. those who are best placed to take action or learn from it) primed to receive and understand it? Will key players be available to be briefed on it, and in turn brief their seniors?
- Is the report structured to convey clear messages, with key areas of interest easily accessible?
- Is there a word/page limit on the report? The balance between the reasonable lengths of the document and the depth/comprehensiveness of coverage for each MoE should be considered.

This consensus on reporting form and content will drive the analysis and drafting stage detailed in Section 4.3.3, and should result in the production of a consolidated CAWG draft assessment that is circulated to staff, including the deployed HQ, for review prior to the meeting. At some stage prior to the meeting, separate briefings may be held with primary stakeholder representatives (such as International Policy Division) if assessments are likely to have a major impact on their programs. Any concerns, queries or changes agreed upon by the CAWG are then addressed through a re-drafted assessment report which is prepared for the J5 to present to CJOPS at the CA Board.

For CA, it should be appreciated that the value of the assessment is not limited to the production of formal written reports. The CA process itself, including the presentation of the reports at CAWGs and CA Boards, provides a cue for discussion and frequently reveals assumptions, disconnects and underlying risks which can be addressed as part of the informal, but still important outcomes of CA.

4.3.4 Implementation Strategy

4.3.4.1 Costs

Under the previous OPSTR 132, and now under the on-going Science and Technology Support Request (STR), DSTO will cover the cost of Australian-based staff for this work, and will assume responsibility for most of the second order costs associated with this

program, as detailed in the STSR response plan (DSTO 2012). HQJOC agreed to fund domestic travel for DSTO's support from 1 January 2012.

4.3.4.2 Staff and skill sets

It was previously estimated that DSTO would be able to support approximately three CA fly-away-teams per year to any of the three primary areas of ADF operation (Afghanistan, East Timor and The Solomon Islands). However, DSTO's ability to provide a high standard of support to these requests is contingent on being staffed to a level that allows the team to engage in enabling research on the science of monitoring and evaluation, and the growth of country-specific expertise for continuous data gathering on each area of operation in between CA cycles and inferring meaning appropriate to environmental context.

4.3.4.3 Access to IT Equipment & Networks

The quality and timeliness of support is contingent on access to IT resources and facilities, such as network access to both DSTO C-NET and DSN. Current reliance on WYSE terminals for remote connection to classified networks is unreliable and slow given the size of data and documents being stored, the requirement to switch between various documents, and requirement for the use of data visualisation tools.

4.3.4.4 Client engagement

The ability of DSTO to meet requirements is also contingent on investment of time and staff effort from HQJOC to provide on-going guidance and willingness to participate in CA scoping, analysis, drafting and review activities. This level of engagement will empower OPE Team and OA Teams to allocate staff time and direct their efforts to best meet the evolving needs of senior command and planners.

4.3.5 Learning Events

The CA process has two scheduled learning events: the CAWG and CA Board, which are intended to be held every cycle. The CAWG is held at the SO1 staff level within HQJOC, but also includes representatives from 1st Division, International Policy Division, and OGAs. It provides an opportunity for participants to review a draft CA report, provide corrections and gain an understanding of potential recommendations. The report is re-drafted as a result of the CAWG before being submitted for the deployed HQ review, and then re-circulated at the J-staff and equivalent level for consideration before being presented by CJOPS at the CA Board. The CA Board is an opportunity for questioning the report's findings, consideration of the planning implications of those findings and for CJOPS to agree or disagree with recommendations and direct action.

The extent of influence of these evaluations is not limited to producing quarterly reports. The commitment of an organization to genuine evaluation is reflected in the extent to which they include it in their decision-making, and in turn draw upon it as part of planning processes. The fact that CA resides within the HQJOC J5 (Plans) Branch partially achieves this, and has led to CA analyst participation in reviews of campaign plans, and reviews of campaign Effects and the MoE sets that underpin them.

To enable continuous improvement of the CA process itself, OPE Team are responsible for hosting ex-OA Team member lessons workshops, to reflect on how the process can be improved, and derive lessons for future raise train and sustainment of OA capability.

5. Findings from Application of the Process

DSTO experience in applying this evaluation framework to the provision of support over successive CA cycles¹¹ has resulted in amendments to the process, and a number of significant insights for the conduct of CA, and for program-level evaluations in general. These are briefly discussed here.

5.1.1 Authority to conduct evaluation

CAs conducted on all three operations have demonstrated that coordination between deployed and Australian-based analysts can become problematic, if the roles and responsibilities to conduct evaluation are not understood. There is a demonstrated need for articulation of who has the authority to execute the process and what decisions are informed by CA. The role of DSTO is to support CA, not to own it or task deployed HQ staff to execute the process. The necessity for CA and the responsibility to execute it as part of core operational functions must be directed by CJOPS and actioned by the deployed HQ Commander (Defence 2011). DSTO can then be empowered to assist with developing frameworks and processes, as well as setting up educational programs or tools in order to enable the ADF to execute the CA process.

Within the framework of the CA support process presented here, the initial phase of establishing the Context for Evaluation, is the logical place for articulation of the authority to conduct an evaluation. However, this has not yet been executed in CA cycles, due to the constraints discussed in Section 2.3, such as execution of CA on already mature plans, and operational time constraints. This guidance is partially contained in the current Standing Instruction (OPS) on Campaign Assessment (Defence 2011), but this does not detail the type of information required and how it is to be collected. It has been previously suggested during CA process review workshops that some form of formalised initiation of each cycle from HQJOC to Commander of the deployed HQ is required. This could eliminate potential misunderstandings over submission dates and enable deployed HQ staff to be directed to devote effort to the task, as well as to authorise the DSTO OA Team's work with deployed HQ staff to achieve quality deployed HQ input into the process (e.g. requests for deployed HQ intelligence product).

¹¹ Evidence and discussion of all CA cycles to date are contained in classified draft DSTO reports on support to operations in Afghanistan, East Timor and The Solomon Islands, which can not be referenced here.

5.1.2 Coordination between deployed and AUS-based analysts

In order to provide a valid assessment of the current operating environment, CA is reliant on significant input from deployed HQs. However, to situate that assessment in the context of the local culture, the activities of other stakeholders, and to verify ADF insights against other reporting perspectives, CA is also dependent on analysts with time, theoretical expertise and resources to synthesise the Deployed HQ inputs into strategic-level assessments. This presents challenges for communication of intent, findings and explanation of decisions made as part of the translation of data into a HQJOC report. The potential for divergence of approach, misinterpretation and disenfranchisement needs to be a constant consideration from start to finish of the CA process. Shared information management and constant communication are both potential mitigations for this risk.

5.1.3 Information management

CA requires the constant monitoring and synthesis of massive amounts of data in diverse formats. Information management systems, data synthesis tools and pre-deployment training of DSTO OA teams need to be included as components of the process to ensure that the deployed HQ is able to meet data requirements of each CA cycle. Without this consideration the quality of analysis and the practicality of scientific design will quickly become compromised¹². For this reason, it has been consistently recommended that OA Teams and deployed HQ staff develop an awareness of the MOEs that are relevant to their area. This familiarity with MoEs will enable them to continuously record any data that may be relevant to CA into a some form of repository, so that it can be routinely added to as information comes to light. This repository can then be easily collated when the CA submission cycle comes around, instead of staff experiencing a spike in work load as they try to collect and review 3-6 months worth of data at CA submission time.

This is sometimes exacerbated by a tendency to invent new databases or information management system file structures each time an information management issue is encountered. While there are opportunities for continuous improvement in information management, where we are attempting to establish sustainable systems that can survive OA Team and deployed HQ rotations, simply making do with inherited systems can save time and effort and allow the establishment of consistent baselines for analysis.

Information management systems need to be:

- easily accessible
- compatible with deployed IT systems
- suitable for monitoring of variables on a continuous basis
- searchable to allow for extraction of data across files, for ease of aggregation.

¹² As noted by Sue C. Funnell & Patricia J. Rogers (2011) *Purposeful Program Theory: Effective use of theories of change and logic models*, Jossey-Bass, San Francisco, USA.

5.1.4 Staff and skill sets

For both monitoring and evaluation plans, the quality of CA is contingent upon the availability of adequate numbers of suitably qualified analytical staff. The provision of quality DSTO support to CA has been significantly impaired in the past by the lack of availability of staff, combined with the time constraints discussed in section 4.1.

Implementation of the monitoring component of the evaluation framework by successive OA Teams, has confirmed that pre-deployment education on the importance and aims of CA improves the deployed HQ contribution. The most effective preparation to date has included briefings at pre-deployment courses, combined with several weeks embedded with DSTO evaluation analysts. This type of preparation has built familiarity with the CA tasks required of OAs when deployed, but has also established valuable relationships between deployed and Australian-based evaluation analysts, which opens channels for communication of data, resolution of obstacles and collaborative analysis. Successive CA cycles have also confirmed that the ideal OA skill for the execution of CA includes liaison, interviewing techniques, initiative, confidence, the ability to establish contacts and a willingness to communicate.

It has become apparent that the execution of the evaluation component of CA also requires staff with a particular skill set. Firstly, the ability to think strategically by processing information in the context of its implications for all other variables in the campaign plan. Secondly, experience in making sense of high degrees of uncertainty, and in deriving evidence-based conclusions from large amounts of diverse data. This requires the ability to maintain focus on the agreed analytical approach, resilience to overwhelming quantities of data at various stages of the process, and experience in identifying and prioritising trends. Thirdly, a sound understanding of the history and dynamics of ADF campaign planning and CA, is essential for using discretion in accommodating changing client requirements, and for producing practical analysis. Finally, evaluation analysts will ideally have existing knowledge, or the ability to quickly acquire knowledge, on the particular operational environment, such as country-specific expertise and understanding of the history of the operation.

6. Conclusions and Future Work

This report documents guidance for DSTO analysts on the entire process for providing support to HQJOC's CA for operations in Afghanistan, East Timor and The Solomon Islands. Its application in each of these contexts has been successful in meeting client requirements, but has reinforced the necessity for a single, consistent, rigorous approach to CA by DSTO analysts in Australia and on deployment. The components of this process are aimed at ensuring this consistency, and creating a cohesive sequence of steps from start to finish. It defines the boundaries of DSTO support, and details expected DSTO roles and the analytical steps that are required.

By breaking down the steps required for support to CA, it has become evident that CA support involves the collection, management and analysis of very large amounts of data. Therefore, the CA process can not be improved by simply increasing the number of analysts, and a solution has to be found for more efficient processing of an expanded data set, either through analysis techniques or information management tools. Notwithstanding this, as noted in Sections 4.3.4.2 and 5.1.4, a critical mass of DSTO staff in terms of both quantity and skill set is imperative for providing support.

As each instance of support to CA has been for existing operations, it has not been possible to optimise the format of campaign planning for evaluation purposes. It has also not been possible during active operations to consult extensively with HQJOC staff to explore the Effects defined in the campaign plan, and to derive a MoE set and any additional evaluation questions for those Effects. As a result the CA process is often 'making do' with retro-fitting an evaluation framework to a given campaign plan structure, and monitoring progress against Effects and Objectives for which intent can only be inferred. The CA process is therefore flexible enough to fit around existing operations, and those who apply it must be reminded that it is not intended to represent best practice in scientific methodology. Rather, it is a practical solution based in scientific theory, for immediate application, but also continuous improvement.

6.1 Future Work

In order to address a number of limitations noted above, and to continue to enhance the CA framework, a number of options for future work are proposed.

As discussed in Section 3.5, there is on-going research being conducted on the development and implementation of the Logic, Assumptions and Risks Framework (LARF). Formalisation of the LARF as a component of the CA process could significantly enhance the monitoring of planning assumptions, which will provide a transparent basis for selecting indicators. The LARF also has the potential to address the problem of applying evaluation frameworks to existing operations by providing a mechanism for drawing out more detailed articulation of the logic that underpins campaign plans. This would serve as a reference point for assessments of whether operations are progressing along intended paths.

It is apparent from the findings of the application of the CA process that DSTO's support can be further enabled with some form of formalised initiation of each cycle from HQJOC to the Commander of the deployed HQ. Further consultation with HQJOC and deployed HQs are required to establish the optimal way to formalise the authority and roles of CA. This would set expectations of deliverables and to authorise the DSTO OA Team's work with deployed HQ staff to achieve quality deployed HQ input into the process (e.g. requests for deployed HQ intelligence product).

The process through which DSTO provides support to HQJOC CA should be subject to continuous improvement, with a number of specific improvements highlighted here.

However, the process has been of significant benefit to Defence operations, described by Deputy CJOPS (Johnston 2011) as follows:

An important new capability has now been established to provide the analytical support to effects-based Campaign Assessments. Campaign Assessments for Afghanistan, East Timor and the Solomon Islands are now able to inform Chief of Joint Operations, Chief of Defence Force and the Strategic Command Group of progress toward operational and strategic objectives and provide a robust mechanism for conditions-based decision making.

This report therefore provides guidance on the purpose, scope and steps of a process through which DSTO can provide significant support to ADF operations.

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Appendix A: Example of campaign assessment analysis sequencing

Campaign Assessment																
Week 1		Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
JOC	Issue a Warning Order or Task Order to JTF to initiate process. Refine MoE set & template & send to OA Team, relevant Defence areas & OGAs		Commence draft CAWG paper	Incorporate responses from OGAs and Defence areas as received.					Arrange CAWG with WoG invitees.	Distribute draft paper to CAWG members	Attend CAWG, & capture conclusions & additional RFIs	Draft CAB document	Distribute CAB draft document for comment	Briefs & presentat.s for J5, CJOPS & CAB	Brief J5, CJOPs and attend CAB	Incorporate CAB comments in preparation for brief to SCG
DSTO	Refine MoE set & template & send to OA Team, relevant Defence areas & OGAs		Respond to feedback from OA Team & change MoE template.	Support drafting CAWG paper, incorporating all INT, JTF & open source reporting from this cycle & respond to reachback OA team requests.				Verify and align assessments & incorporate JTF responses into CAWG paper.			Attend CAWG & incorporate conclusions in draft paper	Draft CAB document		Incorporate comments received on draft CAB document	Brief J5, CJOPs and attend CAB	Back brief to OA Team and recommence research for next cycle
Deployed OA	For Op Slipper, there are 2 OA Teams: AMAB and TK. AMAB is responsible for all aspects of the CA and requests support from TK as required. Examples of where this support may be required are denoted by: (TK?)	CA awareness workshops & socialise MoE set & provide feedback to JOC JE Team	Assist MoP data gathering & analysis & work with J2 to include MoEs in PIRs	Distribute MoE template, assist MoE data gathering (TK?) and commence drafting of JTF report		Collect responses (TK?) & produce draft report	Workshop draft with all J staff (TK?)	CJTF approval of draft & send to JOC	Respond to JOC requests for clarification of data. (TK?)		Coordinate response to CAWG RFIs		Provide comment on draft CAB document		Brief CJTF prior to CAB	Back brief to JTF & review process for next cycle
JTF	Continuous collection of data against MoEs as part of daily reporting and information management															
	On receipt of WO or TO, advise OA Team and direct execution of CA.	Attend CA awareness workshops & provide feedback to OA Team on applicability of MoEs	J2 to consider mapping of MoEs to PIRs	Map MoP and other activity data to MoEs		Aggregate MoE related data and supply to OA Team	Review draft JTF report	Command staff briefed on JTF report and CJTF sign off	Assist OA Team in response to JOC requests for clarification		Assist OA Team in response to CAWG RFIs		Contribute to OA Team coordination of comments on draft CAB document		CJTF briefed prior to CAB	Provide feedback on process to OA Team for next cycle
OGAs	Receive and consider MoEs from JOC			Provide responses on relevant MoEs to JOC		Meet with JOC and DSTO staff as necessary to discuss progress and available data					Attend CAWG		Receive CAB report, inform JOC of any queries and brief CAB attendees		Attend CAB	

DEFENCE SCIENCE AND TECHNOLOGY ORGANISATION DOCUMENT CONTROL DATA					
				1. PRIVACY MARKING/CAVEAT (OF DOCUMENT)	
2. TITLE Guidance on DSTO Analysis Support to ADF Campaign Assessment			3. SECURITY CLASSIFICATION (FOR UNCLASSIFIED REPORTS THAT ARE LIMITED RELEASE USE (L) NEXT TO DOCUMENT CLASSIFICATION) <div style="display: flex; justify-content: space-between;"> Document (U/L) </div> <div style="display: flex; justify-content: space-between;"> Title (U) </div> <div style="display: flex; justify-content: space-between;"> Abstract (U) </div>		
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6a. DSTO NUMBER DSTO-TN-1233		6b. AR NUMBER AR-015-779		7. DOCUMENT DATE October 2013	
8. FILE NUMBER 2012/1195237/1		9. TASK NUMBER 07/021		10. TASK SPONSOR HQJOC	
				11. NO. OF PAGES 33	
				12. NO. OF REFERENCES 23	
13. DSTO Publications Repository http://dspace.dsto.defence.gov.au/dspace/			14. RELEASE AUTHORITY Chief, Joint Operations Division		
15. SECONDARY RELEASE STATEMENT OF THIS DOCUMENT <div style="text-align: center;"><i>Approved for public release</i></div>					
OVERSEAS ENQUIRIES OUTSIDE STATED LIMITATIONS SHOULD BE REFERRED THROUGH DOCUMENT EXCHANGE, PO BOX 1500, EDINBURGH, SA 5111					
16. DELIBERATE ANNOUNCEMENT No Limitations					
17. CITATION IN OTHER DOCUMENTS Yes					
18. DSTO RESEARCH LIBRARY THESAURUS Campaign assessment, monitoring and evaluation, operational analysis.					
19. ABSTRACT This document provides a generic guide for DSTO staff (including deployed operations analysts) on the process for DSTO's Operational Planning and Evaluation Team's provision of analysis support to Headquarters Joint Operations Command for ADF campaign assessments. It uses a program evaluation framework to articulate the roles, responsibilities, sequencing and detailed analysis approaches for DSTO's contribution to campaign assessments of operations in Afghanistan, East Timor, and The Solomon Islands.					